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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,346	02/06/2004	Densen Cao	5125 P	5248

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EXAMINER

MAY, ROBERT J

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/774,346

Applicant(s)

CAO ET AL.

Examiner

Robert May

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                         |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)     |
| Paper No(s)/Mail Date <u>2/6/04, 8/3/04, 03/15/05</u>  | 6) <input checked="" type="checkbox"/> Other: <u>IDS PTO 1449 filed 3/15/05</u> |

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities: On Page 5 paragraph [018], second line, the term "geographic" is not understood by the office as used in this context. The Office recommends using the term --geometrical--in its place.

Appropriate correction is required.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: the office as used in this context does not understand the term "geographic". The Office recommends using the term --geometrical--in its place.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1,3-4, & 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein (US Pat 6,517,218) in view of Wallace (US Pat 4,238,709) and Hartley (US Pat 6,502,952).

In regard to Claims 1,6-9 Hochstein discloses in Figure 2 an LED (12) affixed to a primary heat sink (18) which is attached to a secondary heat sink or PCB (32) which is attached to a heat dissipating heat sink configured as fins (32), but fails to disclose a wavelength shifting coating on a semiconductor chip for converting the light emitted by the semiconductor chip to white light and a remote battery pack in electrical communication with the light module. However, Hartley discloses an LED assembly for a flashlight wherein the LED is coated with a phosphor coating which acts to convert the emitted light to a white light (Col 14; Lines 1-3) in order to produce a white light for general illumination purposes. Wallace discloses in Figure 1, a headlamp control circuit with a separate battery pack for powering the lamp which is generally known to one of ordinary skill in the art that it would enable the user to easily replace and recharge the battery because it is not integrated with the lamp. Therefore, it would be obvious to one of

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ordinary in the art to modify the LED integrated heat sink of Hochstein with the phosphor coating of Hartley in order to produce a white light and the remote battery of Wallace in order to provide a configuration which enables easy replacement and recharging of the battery.

In regard to Claims 3-4, Hochstein in view of Wallace and Hartley disclose all of the claimed elements of Claim 1 except for a second remote battery. Although it is not explicitly disclosed it would be generally obvious to one of ordinary skill in the art to have more than one battery in order to have a backup battery in such a case when the first battery loses charge. Furthermore, Wallace discloses a harness for carrying the battery on the wearer's belt (Col 2, Lines 47-49), which could also be configured for securing the battery to the wearer's helmet. Therefore, it would be obvious to one of ordinary skill to modify the LED integrated heat sink Hochstein in view of Wallace and Hartley with a spare battery in order to provide for a spare battery when the first battery loses charge.

Claims 2,12-13, & 15-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein in view of Wallace and Hartley as applied to claims 1,3-4, & 6-9 above, and further in view of Koehler (US Pat 3,852,587). Hochstein in view of Wallace and Hartley teach and suggest the combination as claimed in Claim 12 except for a magnetic switch for activating the light emission. Koehler however, teaches a combination head and case mounted light for an underwater diver or miner (Col 1, Lines 9-10) with an air and water tight switch mechanism having an electrically conductive

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ferromagnetic element shiftable in a capsule which shifts in response to the shifting of a magnetic switch (Col 2, Lines 48-52). Therefore, it would be obvious to modify the integrated LED heat sink of Hochstein, Wallace and Hartley with the magnetic switch of Koehler to provide a water and airtight switch mechanism for use in a wet or underwater environment.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein in view of Wallace and Hartley as applied to claims 1,3-4, & 6-9 above, and further in view of Kish (US Pat 5,793,062). Hochstein in view of Wallace and Hartley teach and suggest all of the claimed elements of Claim 1 except for a light reflective adhesive between the semiconductor chip and the primary heat sink. Kish however, discloses in Figure 2 a Silver loaded reflective epoxy which affixes an LED to a reflector cup in order to reflect the light from the LED's back surface and improve the intensity of the light (Col 3, Lines 65+). Therefore, it would be obvious to modify the integrated LED heat sink of Hochstein in view of Wallace and Hartley with the reflective epoxy of Kish in order to improve the intensity of the light emitted.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein in view of Wallace, Hartley, Koehler as applied to claims 2,12-13, & 15-24 above, and further in view of Kish (US Pat 5,793,062). Hochstein in view of Wallace, Hartley, & Koehler teach and suggest all of the claimed elements of Claim 12 except for a light reflective adhesive between the semiconductor chip and the primary heat sink.

Kish however, discloses in Figure 2 a Silver loaded reflective epoxy which affixes an LED to a reflector cup in order to reflect the light from the LED's back surface and improve the intensity of the light (Col 3, Lines 65+). Therefore, it would be obvious to modify the integrated LED heat sink of Hochstein in view of Wallace, Hartley, and Koehler with the reflective epoxy of Kish in order to improve the intensity of the light emitted.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kosman (3,821,590), Durocher (6,614,103), and Wojnarowski (6,452,217) disclose an LED structure with a wavelength adjusting coating or element affixed to the LED.

Singer (5,813,752), Cheng (2004/096996), Slater (6,740,906), Song (6,670,751) and Cooper (6,491,408) disclose an LED epitaxial structure.

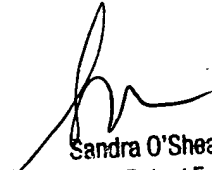
Shie (6,480,389) and Shih (2003/0058650) disclose a heat dissipation structure for an LED.

Barnett (4,793,007) discloses a safety helmet with light and remote battery pack.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert May whose telephone number is (571) 272-5919. The examiner can normally be reached between 9 am– 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306 for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval PAIR system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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